The What if?™ Planning Support System

Richard E. Klosterman

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Trends in Information Support

- New Technological Possibilities
  - GIS technology and data more readily available
  - GIS data being combined with computer models and visualization tools (Planning Support Systems)
- New Views on Community Involvement
  - “Planning with the public” replacing “planning for the public”

New Kinds of Models

- GIS-based
- Simple, understandable, and easy to use
- Identify policy choices and assumptions
- Reveal outcomes of policy alternatives
- Theoretically sound and fully documented
- Available as commercial off-the-shelf packages

Planning Support Systems

"involve a wide diversity of geo-technology tools ... that have been developed to support public or private planning processes ... at any defined spatial scale and within any specific planning context" (Geertman and Stillwell, *Planning Support Systems in Practice*, p. 5)

Planning Support Systems

- Are very new
  - Brail and Klosterman, eds. *Planning Support Systems* (ESRI Press 2001)
  - Geertman and Stillwell, eds. *Planning Support Systems in Practice* (Springer 2002)
- Also very old
  - Began with first attempts to use computers in planning

Information on Planning Support Systems

- U.S. EPA. *Projecting Land Use Change.* U.S. EPA, 2000
  - www.epa.gov/cbep/tools/reportfinal3.pdf
- PlaceMatters.com on-line resource inventory
  - www.placemakingtools.com
- Brail and Klosterman, eds. *Planning Support Systems.* ESRI Press and CUPR Press, 2001
- Geertman and Stillwell, eds. *Planning Support Systems in Practice.* Springer, 2003.

What if?™

- Is a policy-oriented, scenario-based planning support system
- Does not attempt to predict future exactly
- Instead it shows ***What*** would happen ***if***
  - Development policies are enacted
  - Growth assumptions prove to be true

What if? Applications...

- Areas
  - Growth management
  - Farmland preservation
  - Environmental impact assessment
- Scales
  - Township
  - County
  - Multi-county
  - State (in process)

What if? Applications...

- In Wisconsin
  - Black Creek watershed
  - Verona Township
  - Dane County (in process)
- In the United States
  - Medina and Summit County, Ohio
  - Seven-county Cleveland/Akron area
  - State of Ohio (in process)
  - Austin, Texas
  - Central Valley, California

What if? Applications

- Internationally
  - Australia
  - China
  - Iran
  - Korea
  - Malaysia
  - Taiwan

Factors Considered by What if?

- **Suitability of land**
  - Quantity and location of suitable land
- **Demand for land**
  - Residential, industrial, commercial, preservation, and local land uses
- **Public policies**
  - Infrastructure availability
  - Master plans, zoning controls, and open space preservation programs

Required Data

- Existing land use layer
- Suitability analysis
  - Natural feature layers (e.g., slopes, floodplains, soils, wetlands, and river buffers)
- Demand analysis
  - Population and employment projections
  - Assumed future densities and in-fill rates
- Allocation analysis
  - Public policy layers (e.g., land use plan, zoning, infrastructure expansion, open space protection plan

What if? a “Bottoms Up” Model

- All analysis done with homogenous land units or Uniform Analysis Zones (UAZs)
  - Suitability analyzed for each UAZ
  - Future land uses forecasted for each UAZ
- Results for larger areas determined by combining UAZs

UAZs

- GIS-generated polygons which are homogeneous with respect to everything considered in the model
- All points inside a UAZ have
  - The same current land use
  - The same slope, soils, and natural characteristics
  - The same zoning, infrastructure availability
  - And so on

What if? Programs

- What if?
  - Used to prepare suitability, demand and allocation scenarios
- Setup
  - Used to convert user's GIS layers into What if? projects
- Manager
  - Used to enter non-GIS information and modify project files

What if? Components...

- Suitability
  - Create suitability scenarios
    - Supply and location of suitable land
    - Consider natural features
  - View suitability maps, tables, and assumptions

What if? Components...

- Demand/Growth
  - Create land use demand scenarios
    - Residential
    - Industrial
    - Regional Commercial
    - Preservation
    - Local
  - View demand reports and assumptions

What if? Components

- Allocation
  - Create future land use scenarios
    - Combine suitability and demand scenarios
    - Incorporate public policies
  - View future land use maps, tables, and assumption reports

What if? Information

- Requires GIS to create projects
  - Not a GIS extension
  - Requires GIS that works with shape files
  - Does not require any other software
- Operating system
  - Any version of Windows
- Cost:
  - $2,950 - single user
  - Academic and site licenses available

What if? 2.0

- Projects population and employment
  - Census tracts or block groups
  - Traffic analysis zones
  - Any other user-defined areas
- Allows up to 99 land use categories
- More directly incorporates data sources
- Provides improved mapping
- Available “spring 2004”

Application Example – Edge City

- Rapidly growing area near Central City
- Situation in 2000
  - Population – 16,270
  - Employment – 37,100
- Projections for 2020
  - Population – 41,000 to 47,000
  - Employment – 49,000 to 57,000

Edge City Questions

- What will population and employment be?
- Should water and sewer service be extended?
- Should 2030 land use plan be adopted?
- Should interchanges be added?
- Can community preserve farmland?